0000102291

CORRES. CONTROL
INCOMING LTR NO.

4041 RF 93

DUE DATE 9-22-93

ACTION Hutchins

DIST.	LTR	ENC
BENEDETTI, R.L.		
BENJAMIN, A.		
BERMAN, H.S.		
CARNIVAL, G.J.		
COPP, R.D.		
CORDOVA, R.C.		
DAVIS, J.G.		
FERRERA, D.W.		
FRANZ, W.A.		
HANNI, B.J.		
HEALY, T.J.		
HEDAHL, T.G.		
HILBIG, J.G.		
KIRBY, W.A.		
KUESTER, A.W.		
MANN, H.P.		
MARX, G.E.		
McKENNA, F.G.		
MORGAN, R.V.		
PIZZUTO, V.M.		
POTTER, G.L.		
RILEY, J.H.		
SANDLIN, N.B.		
SATTERWHITE, D.G.		
SCHUBERT, A.L.		
SETLOCK, G.H.		
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.		
WILSON, J.M.		
Hutchins M	X	X
Siders M	X	X
Boan R	X	X
Smith D	X	X
Adm Rec	X	X

CORRES CONTROL	x	x
PATS/T130G	X	X

Reviewed for Addressee
Corres. Control RFP

9-10-93 CL
DATE BY

Ref Ltr. #

DOE ORDER # 5400.

RF-46522 (Rev. 7/93)

tates Government **Department of Energy**

morandum

SEP 10 9 15 AM '93

Rocky Flats Office

EG&G
ROCKY FLATS PLANT
CORRESPONDENCE CONTROL

SEP 0 9 1993

ERD:JP:10560

Review of the Draft Background Geochemical Characterization Report, Dated August 17, 1993

Ned Hutchins, Acting Associate General Manager
Environmental Restoration Management
EG&G Rocky Flats, Inc.

The Department of Energy has reviewed the referenced document and is providing the attached comments which require resolution prior to submittal of the final document. In general, DOE believes that this report represents an improvement over previous background reports.

The Final Background Geochemical Characterization Report is due to the regulatory agencies on September 30, 1993. Please revise and submit ten copies of the document to DOE by September 22, 1993. Two of these copies should contain all data in hard copy.

If you have any questions or comments, please contact Jen Pepe of my staff at 966-2184.

Richard J. Schassburger
Acting Director
Environmental Restoration Division

Attachment

cc w/ Attachment:
N. Hutchins, EG&G
M. Siders, EG&G
R. Boan, EG&G
D. Smith, EG&G
R. Lindberg, SMS, RFO

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

CHARACTERIZATION REPORT, DATED AUGUST 17, 1993
COMMENTS ON THE DRAFT BACKGROUND GEOCHEMICAL

Our overall impression is that this is a much improved document over what was produced the previous two years. The report reads very well thanks to the hard work of M. Siders. All minor comments and spelling corrections are marked directly on the text of the reviewed document.

We are a little concerned that the statistical methodology shown on Figure 1-1 (page 1-5) deviates somewhat from both, (1) the statistical methodology presented in the final Background Geochemical Characterization Plan, and (2) from the proposed update to statistical methods used in the 1992 Background Report (Section 6.0, Figure 6-1). The bottom line here is that it is ok to change the statistical approach as long as EPA and CDH agree to the changes.

Also on Figure 1-1, for those circumstances in which Helsel's method is applicable, we think it is more logical to use Helsel's method to treat non-detects prior to computing summary statistics or using ANOVA. If the technique has any value, why wait until the end to apply it only prior to computing UTLs?

At this point in time it appears that RFP will use some variant of Dr. Gilbert's proposed methodology for comparing background and downgradiant data. Gilbert proposed (page 9 of the 7/30/93 report) using the 99% UTL as an acceptable hot measurement (HM) standard. We know from past experience that we see a lot of exceedences of background when the 95/95 UTL is used as the HM standard. Therefore, we think we should include UTL statistics in the 1993 Background Report at the most conservative 99% coverage, and .99 confidence level.

Page 1-9 says that Helsel's method was used to correct the mean and variance prior to computing the UTLs in Appendix C. Appendix C should include these corrected means and standard deviations by analyte. Besides summarizing the chemical data, showing the mean and standard deviation would allow someone to easily compute new UTLs (for a known sample size) at any population coverage and confidence without going to the raw data diskette and trying to recode the Helsel method.

Even though we understand the problems of dealing with multiple non-detects, we still find the discussion (pages 1-6 to 1-9) of how you treated them very confusing. In some cases (summary stats) you use 1/2 the detection limit; for organics the largest non-detects are omitted and then 1/2 the remaining detection limits are used; for most analytes Helsel's method seems to have been applied, but was that after removing CRDLs or resetting them via Table 1-1? Maybe a small table summarizing the various treatments and which data sets they were applied to would help the reader?

On page 1-9 (first paragraph) it says Appendix D summary stats were based on substituting 1/2 the reporting limits. Therefor those stats are not consistent with the Appendix C UTLs which are based on Helsel's method.

Item (4) on page 1-7 says that a second set of statistics for metals will be presented in Appendix G. These statistics will apparently exclude the highest non-detects (the CRDL data) in a similar manner to what was done last year (excluding all non-detects greater than two times the smallest non-detect). We don't see the advantage in presenting two different approaches to the treatment of non-detects, unless a comparison will be made and the superior approach applied universally. Couldn't the entire issue of dealing with multiple non-detects have been avoided by universally applying Helsel's method in the first place? Page 17 (second paragraph) of the Gilbert report recommends the Helsel methodology and you are using it part of the time.

Time permitting, it would be nice to include the 85th percentile statistics by analyte for the upper and lower flow system ground water data. This could be useful in dealing with CDH at future Colorado Water Quality Control Commission hearings.

Page 1-11, correction. The 1989 Background Report lumped seep water in with surface water stations because the data were all collected under the surface water sampling program. The agencies argued for combining the seep data with ground water. We ended up treating seep data as a third, separate water group in the 9/30/92 Background Report.

Page 1-12 mentions the rejected 1989 rad data. Does the text say anywhere whether or not R data were excluded from analysis in the 1993 report? Please reiterate the discussion on page 4-1 concerning R data up front where you discuss the data sets used for statistics.

Page 1-13, Table 1-2 indicates that there are wells screened in valley fill, but does not indicate any valley fill geologic materials. This may be correct, but we thought that we had borehole materials from valley fill. Also, we are surprised to see that geologic materials were classified by upper and lower flow system.

Page 1-23, Figure 1-2. Add a "No" branch off the "Equal Variances Among Populations" box. This branch can return to the "original data" box. We think you should also "allow" the use of Helsel's method as an alternative to using 1/2 the reporting limit.

Page 1-24, first paragraph. It's the 95% coverage of the population, not the confidence, that allows 5% of the population to exceed the UTL!

Figure 4-3, page 4-44. The preceding text does not mention the high pH values shown on this figure. A well with pH 10 or 11 water is not a suitable background well! Please take a quick look at the ground water pH data for these wells. If there are only a few high pH values in the older data, then the well slowly developed over the last 4 years and perhaps the older analytical data could be omitted from the statistics. If the pH values are still high in 1992 we should not include that well in ground water statistics for metals or other analytes.

We like the greatly increased number of graphs and charts in this year's report. Those in Appendix B are particularly interesting. The hardcopy summary statistics of Appendix D will no doubt please the staff at EPA, and we like the outlier summary of Appendix E. We assume the plates will be the same as last year, perhaps with an updated potentiometric surface map?